

CTAS Joint Software Development

Michelle M. Eshow

The Federal Aviation Administration (FAA) has decided to field major elements of the Center/TRACON (Terminal Radar Approach Control) Automation System (CTAS) to many air traffic control facilities across the United States. To facilitate the deployment, NASA, the FAA, and their contractors have conceived and implemented an innovative software development approach known as Joint Development. Under Joint Development, NASA and the FAA are working in a common baseline of software that combines the products of CTAS enhancements produced by NASA with the FAA-generated elements necessary for a fielded operational system. This approach contrasts with previous efforts in which there was a single discrete handoff of software or technology from a research organization to the FAA.

The primary benefit of this Joint Development approach is that new CTAS functionalities and even entirely new tools developed as part of NASA's research programs can be fielded very quickly, because they are included in the common software baseline as soon as they are proven beneficial in field evaluations. The alternative would be to transfer the new functionalities in the form of written specifications to the FAA, which would then have to redevelop them for the operational system. In the past this approach has proved technically difficult and prohibitively expensive.

However, the Joint Development approach presents its own unique challenges. The software developed by NASA and its contractors must be written to conform to the same standards as that for the operational system. And, the configuration management of the software is a complex task that must be managed jointly by NASA, the FAA, and their contractors. These challenges are being met with a combination of process improvement and strategic use of advanced, commercially available products for configuration management and change tracking. In particular, the ClearCase/Multi-Site configuration management tool is being used for parallel development of CTAS at four locations across the country. Every few weeks, the software developed at the four sites is merged, thus incorporating the work of all the organizations.

The Joint Development process has been in full operation since July 1997, and many benefits have already been realized. In fact, the FAA is leveraging this approach to move up the initial deployment of CTAS by 2 years, to 2000.

Point of Contact: M. Eshow
(650) 604-5272
meshow@mail.arc.nasa.gov